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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,096	11/07/2001	Yoshihiro Takahashi	2000-P342686	4943

7590

02/06/2003

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EXAMINER

SUMMONS, BARBARA

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 02/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,096

Applicant(s)

Takahashi et al.

Examiner

Barbara Summons

Group Art Unit

2817

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 11/7/01 (Pre-Amt)

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-20 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 9 and 20 is/are allowed.

☒ Claim(s) 1-8 and 10 is/are rejected.

☒ Claim(s) 11-19 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The drawing(s) filed on 11/7/01 is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☒ All ☐ Some* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

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DETAILED ACTION

Drawings

1. Figures 12, 13 and 14 should be designated by a legend such as --Prior Art-- or --Related Art-- or --Background Art-- because only that which is old is illustrated (see e.g. the spec. at page 1, line 24 through page 4, line 6). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: reference sign “79” shown in Figs. 9(A), 9(B) and 9(C) is not mentioned in the description (see e.g. page 21, line 25, after “portion” perhaps?). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

On page 4, the sentence on lines 3-6 is poorly worded. The Examiner suggests that on page 4, line 4, “packaging of the SAW filter” be changed to --that the SAW filter be packaged--.

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On page 6, line 11, the statement that the charge "is neutralized, even generated" does not make sense since "neutralized" and "generated" are contradictory terms. On page 9, on line 9, "material" should be followed by --is--. On page 9, on each of lines 8 and 10, it appears that "spattering" should be --sputtering--. On page 11, on each of lines 14 and 16, "spattering" should be --sputtering--. On page 11, on line 16, it appears that "back" should be --front-- (see film 2 on the front surface in Fig. 2 vs. film 3 on the back surface in Fig. 3 with pg. 12, last line to pg. 13, ln. 2). On page 15, line 11, it appears that the redundant "of the fifth embodiment" should be deleted. On page 18, line 15 should "5" correctly be --52--? On page 18, line 17, "spacing" should be followed by --between--. Appropriate correction is required.

Claim Objections

4. Claims 5, 6, 16 and 17 are objected to for the following reasons:

Claims 5 and 16 are objected to as being substantially identical in scope to claims 6 and 17, respectively. That is, both sets of the claims (5 with 16 and 6 with 17) are to the SAW filter with the electric discharge preventing means realized by a film of conductive material provided on a front surface side edge portion of the chip substrate.

Applicant is advised that when one set of the claims is found allowable, the other set of claims will be objected to under 37 CFR 1.75 as being substantial duplicates thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the

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other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Therefore, one of the sets of claims should canceled. The Examiner suggests canceling claims 5 and 16 because it appears that claim 6 is in better form (see the other claim objections below).

5. Claims 5, 8 and 9 are objected to because of the following informalities:

In claim 5, on line 2, note that "mean" should be the plural --means--; and
on line 3, "provided" should be followed by --on--.

In claim 8, on line 4, "as" should be followed by --an--; and
on line 8, "the electric discharge" should be --an electric discharge-- because
an electric discharge preventing means has not been previously recited in the claim.

Similarly, in claim 9, on line 4, "the electric discharge" should be --an electric discharge--.
Appropriate correction is required.

6. Claim 7 is objected to because of the following informalities:

Claim 7 recites that the high resistivity pattern is "provided such as to surround a front surface side edge portion of the chip substrate". This limitation is poorly worded so as to be confusing. The Examiner believes this limitation is intended to refer to the embodiment of Fig. 5, wherein the high resistivity pattern 3 is formed on the front surface side edge portions so as to surround the front surface center portion. That is, the front surface side edge portions are **not** surrounded by the high resistivity pattern. Appropriate correction is required.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ichikawa et al. U.S. 5,757,250.

Figs. 12A and 12B of Ichikawa et al. disclose a surface acoustic wave (SAW) filter device with a chip substrate 41 of piezoelectric material having a plurality of interdigital transducers (IDTs) 42 and 44 and accommodated in a package (see e.g. Figs. 11D-11G), wherein the package (cover 36 and body 34) is formed of a transparent material including plastics (see col. 14, lns. 54-63 and col. 15, lns. 1-8). Regarding claims 1-3, the SAW filter further includes an electric discharge preventing means realized by a high resistivity thin film 47 (see col. 15, lns. 55-60 and col. 16, lns. 6-8) provided between the chip substrate 41 and the IDTs 42 and 44, wherein the high resistivity thin film 47 is also a common potential means for providing a common potential in the IDTs (see also col. 17, lns. 13-25 and 38-41 and Figs. 13E-13G) and is therefore, also a charge neutralizing means. Regarding claim 4, see e.g. col. 17, lns. 26-43. Regarding claims 5-7 because the high resistivity conductive thin film covers the entire front surface of the chip, it also covers the front surface side edge portions shown in Applicants' Fig. 5, and is therefore, considered to "surround" the front surface side edge portion of the chip substrate.

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9. Claim 10 is rejected under 35 U.S.C. § 102(b) as being anticipated by both Fukatsu et al. JP 5-55866 and Akahori JP 6-132759.

Figs. 4 and 7 of Fukatsu et al. disclose a package for accommodating a SAW filter (see the abstract, ln. 5) which comprises a terminal member 6 made of metal extending out of the package and extending into the package such as to form an L-shaped portion (see especially the two end leads in Fig. 7 whose ends for wire bonding inside the package are L-shaped like a golf club head).

Figs. 2 and 3 of Akahori disclose a package for accommodating a SAW filter 5 which comprises a terminal member 1 made of metal extending out of the package and extending into the package such as to form an L-shaped portion (see especially the two end leads in Fig. 2, wherein the wires are bonded the heads of leads that are L-shaped).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

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and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Morizaki JP 2000-196408 in view of Uda et al. JP 9-186550.

Fig. 1 of Morizaki discloses a SAW filter device with a chip substrate 101 of piezoelectric material having a plurality of IDTs (111, 121, 131), wherein a first pattern 141 as an extension of part of the IDTs (i.e. line 150 couples to each of the IDTs 111, 121, and 131 and therefore, the lines between the IDTs and pattern 141 form an extension of each of the IDTs), a second pattern (i.e. the comb fingers of pattern 142) spaced apart from the first pattern and a dummy electrode (i.e. the bus bar portion of pattern 142 connecting the comb fingers) connected to the second pattern, are formed on the front surface of the chip substrate as an electric discharge preventing means for preventing electric discharge among the plurality of IDTs (see the abstract, the last 10 lines thereof).

However, Morizaki does not show the SAW filter in a plastic package.

The Examiner takes Official Notice that it would have been extremely well known to package SAW device for protection from environmental factors.

Additionally, Uda discloses that it is well known to package SAW devices (see e.g. Fig. 1) and suggests that packages made of ceramic, plastic, alumina or BT resin are well known interchangeable packages in the SAW filter art (see the abstract, lns. 8-11).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter of Morizaki by having provided it in a plastic package because packaging SAW filter devices would have been well known in the art as evidenced by the exemplary teaching thereof Uda (Fig. 1), and because packaging would have provided the advantageous benefit of protection from environmental factors as would have been known by one of ordinary skill, and the use of a plastic package would have been a mere design choice between alternate interchangeable package materials as explicitly suggested by Uda (see the abstract, lns. 8-11) and as would have been known by one of ordinary skill.

Allowable Subject Matter

12. Claims 9 and 20 are allowable over the prior art of record.

13. Claims 11-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or fairly suggest a SAW filter device having each of the specifically recited features, and especially wherein an "electric discharge preventing means...is realized by opposed portions of the interdigital transducers having non-sharp edges"

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(see claim 9, the last five lines thereof); or wherein the device includes a plastic package including a terminal member with an L-shaped portion and wherein "the back surface of the chip substrate in contact with the L-shaped portion" (see each of claims 11 and 13-19).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamada et al. U.S. 5,889,446 discloses a conductive resistor thin film 13 (Figs. 1B and 2) formed on a front surface of a SAW device substrate 11 as an electric charge preventing means (see the abstract, the last six lines thereof).

Tabuchi et al. U.S. 5,202,652 provides further evidence that plastic packages are interchangeable with other types of packages in the SAW filter art (see col. 10, lns. 42-45).

Fujita et al. U.S. 6,034,578 discloses forming patterns of dummy electrodes 7a-7d (see Fig. 1) on a surface of a SAW device substrate to prevent electric discharge (see the abstract).

Watanabe et al. U.S. 5,548,256 discloses patterns 33-36 (Fig. 3) as extensions from the IDTs and for preventing electric discharge among the IDTs (see col. 2, lns. 24-32).

Toda et al. JP 56-149813 discloses a SAW device with an electric discharge preventing film 19 formed on the front and side surfaces of the chip (see the abstract, lns. 1-3 and Fig. 10).

Toda et al. JP 56-149110 discloses a SAW device with an electric discharge preventing means including a high resistance film 23 (see Figs. 10 and 12) on the front surface of the chip,

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and a conductive film 24 on the front surface side edge portions and on the sides of the chip (see also the abstract).

Ito JP 10-126207 discloses a SAW filter device [see Figs. 1 and 2(b)] having an electric discharge preventing means (see the abstract, the last six lines thereof) including a semiconductor thin film 6 having a specific resistance value

16. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 30-7724, receptionist's no. (703) 308-0956, Supervisory Examiner Bob Pascal (703) 308-4909.

A handwritten signature in black ink that reads "Barbara Summons". The signature is written in a cursive, flowing style with a long horizontal line extending from the end.

Barbara Summons
Patent Examiner
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bs
January 30, 2003